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GARDEN CALENDAR

A radio talk by W. R. Beattie, Bureau of Plant Industry, delivered in the Department of Agriculture period of the National Farm and Home Hour, broadcast by a network of 48 associate NBC radio stations, Tuesday, August 30, 1932.

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In my recent garden calendar talks I have been telling you about the new disease resistant varieties and strains of tomatoes and cabbage that have been developed by plant breeders. Today I want to tell you about the new, disease resistant varieties of lettuce that have largely overcome the brown blight and the mildew, two diseases that threatened to almost wipe out the western lettuce industry.

No doubt some of you, like myself, are old enough to remember when fresh lettuce was practically unheard of during the winter months. Then the lettuce forcing industry developed in the North and winter lettuce growing got under way in Florida and Southern California. Since those days the industry has grown by leaps and bounds and our markets are now well supplied with crisp, fresh lettuce practically every day in the year.

The lettuce growing regions most affected by the Brown Blight and Mildew are in California and Arizona where a large part of our winter supply of Iceberg-type head lettuce is grown. The plants that are affected with Brown Blight become stunted and yellow then gradually turn brown and die. The Department workers, in cooperation with the growers, soon traced the trouble to a soil-borne disease which increases rapidly from year to year. In fact it meant that when the disease once got into the soil you could grow only about two crops of lettuce on that piece of land before the soil became so filled with the disease that the whole crop would be lost. It soon became a problem to find new land for lettuce growing, and the worst of the matter was that the growing of alfalfa and other crops on the old lettuce land for five or six years didn't seem to reduce the disease in the soil.

You'll recall that I told you that the plant breeders fighting the cabbage yellows developed a resistant strain by selecting the plants that made good heads on land that was heavily infested with the disease then growing seed from those heads. In the case of the tomato wilt disease our men followed two methods, breeding new varieties and selecting resistant plants that developed in old varieties growing on wilt-infested soil. The men who started the fight against the lettuce Brown Blight used both methods but they got results faster by selecting resistant plants of old varieties.

Now when you buy a head of "Iceberg" lettuce on the market or in a store you probably don't get true "Iceberg" at all but a variety which is known to seedsmen as New York and which sells on our markets as "Iceberg." The name don't make very much difference so long as the head of

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lettuce that you buy is fresh and sound. It was with this New York variety that Dr. Ivan C. Jagger, Senior Pathologist of the Bureau of Plant Industry, began selection work about ten years ago. This method gave quick results so that in 1926 two new resistant strains under the names Imperial No. 2 and Imperial No. 3 were introduced. A third strain, Imperial No. 6 was introduced in 1928. These strains made normal crops on the most severely diseased soils in the Imperial Valley in California and outyielded the original New York variety even on disease free soils.

No sooner did the Department workers get the solution of the lettuce brown blight problem well under way than they ran into another difficulty in the form of lettuce mildew. This disease is caused by a fungus that yellows and browns the outer leaves of the plants. While the lettuce plants that are attacked by mildew will usually form marketable heads both the quality and the appearance of the heads are injured. To make a bad matter worse the new Imperial strains were found to be especially susceptible to mildew and Jagger had to start a new line of crosses in order to get varieties, or strains, that would be "double-resistant," that is resistant to both diseases.

You're probably acquainted with the Cos or Romaine variety of lettuce from France that we often grow in our gardens. Well, crosses were made between the New York variety and the Cos or Romaine and these were planted on soil that was infected by brown blight and where the mildew was also abundant. That was putting the new strains up against a pretty tough proposition but some of them came through the test all right. Jagger again crossed these survivors with Imperial No. 2 and Imperial No. 3, and grew the double crosses on infected land.

Early in 1930 Dr. Jagger was able to place small amounts of seed of the two most promising double-resistant strains, Imperial C and Imperial F, in the hands of lettuce seed growers to grow a larger supply of seed. All of the disease-resistant strains are of the same general type as the New York, which as I said a little while ago, are all sold under the trade name "Iceberg." They respond somewhat differently to climatic and cultural conditions and should not be substituted unwittingly for New York by seedsmen or growers.

Lettuce breeding and selection work is being continued with the purpose of combining disease resistance with further improvements in quality, yield, and adaptation to various cultural and climatic conditions. These Imperial strains that I have been telling you about have been developed for the purpose of meeting the conditions as found in the Western lettuce growing regions from which most of our winter lettuce comes, but the success that has attended their development illustrates my point that special strains and varieties of vegetables can and are being developed to meet special conditions.